NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FIELD BORDER

(Ac.)

CODE 386

DEFINITION

A strip of perennial vegetation established at the edge or around the perimeter of a field.

PURPOSES

This practice may be applied for one or more of the following purposes:

1. Reduce erosion from wind and water;
2. Protect soil and water quality;
3. Provide wildlife food and cover, and habitat for pollinators or other beneficial organisms;
4. Increase carbon storage;
5. Improve air quality.

CONDITIONS WHERE PRACTICE APPLIES

This practice can be applied around the inside perimeter of cropland and pasture fields and may be used to connect other buffer practices within and between fields.

This practice does not apply to:

Plantings which are intended to function primarily as filter strips or riparian buffers for which other standards are applicable. Refer to the conservation practice standards for Filter Strip (393); Riparian Herbaceous Cover (390); and Riparian Forest Buffer (391).

CRITERIA

General Criteria Applicable to All Purposes

Field borders shall be established at field edges to the extent needed to meet the resource needs and producer objectives. Field borders shall be a minimum of 10 feet wide and shall consist of perennial herbaceous and/or shrub species.

Establishment of vegetation by planting is the preferred method for creating field borders. Plantings shall consist of two or more species to provide greater vegetative diversity.

Select plant species based on the proposed uses of the field border, preferences of the land user, and conditions of the site. Consider plant growth rates, shade tolerance, soil moisture requirements, and other plant characteristics when selecting species.

Select plant species that are native to Delaware, or are introduced and are non-invasive (i.e., not likely to spread beyond the planted area and displace native species). Selection of native species shall be a priority when feasible. No plant listed by the state of Delaware as an invasive species shall be established in the field border.

Site preparation and planting to establish vegetative cover shall be done at a time and manner to insure survival and growth of selected species. Only viable, high quality seed and planting stock shall be used. The method of planting shall include hand or machine planting techniques suited to achieving proper depths and placement for the selected plant species.

If present, ephemeral gullies and rills in the planned border area shall be eliminated as part of seedbed preparation. Treat ephemeral gullies and rills located immediately upslope from the planned border area to ensure more of a sheet flow into the planned border area.

Control or exclude livestock as needed to establish and maintain the vegetative cover to meet its intended purpose.

Control plant and animal pest species to the extent feasible to achieve and maintain the intended purpose of the practice. Control noxious weeds as required by state law.

Additional Criteria to Reduce Erosion from Wind and Water

Establish stiff-stemmed, upright grasses, grass/legume mixes, and/or forbs to trap wind- or water-borne soil particles. Plants selected for the field border shall have the physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area. The amount of surface and/or canopy cover needed shall be determined using current approved wind and water erosion prediction technology.

Wind Erosion Reduction. Locate borders to provide a stable area on the windward edge of the field during the critical erosion period(s), as determined by prevailing wind direction data. Minimum height of grasses and/or forbs shall be one foot during the critical erosion period.

Water Erosion Reduction. Locate borders to eliminate sloping end rows and other areas where concentrated water flows will enter or exit the field. As feasible, orient planting rows perpendicular to sheet flow direction.

Field borders that will be used primarily as travels lanes and turn rows shall be established wide enough to accommodate turning equipment for planting and harvesting. Generally, these activities require borders at least 20 feet wide.

Additional Criteria to Protect Soil and Water Quality

Reducing Soil Compaction from Equipment Parking and Traffic. Border widths shall be designed to accommodate equipment turning, parking, loading/unloading, grain harvest operations, etc.

Water Quality (Adsorbed, Dissolved, and Suspended Contaminants). At a minimum, locate field borders along the edge(s) of the field where runoff enters or leaves the field. The minimum width for this purpose shall be 35 feet. Border widths shall comply with all applicable state and local regulations concerning nutrient and chemical application setbacks. Vegetation shall have a stem density/retardance of moderate to high (e.g., equivalent to a good stand of wheat).

Additional Criteria to Provide Wildlife Food and Cover and Habitat for Pollinators or other Beneficial Organisms

Where wildlife habitat is identified as the primary purpose, the minimum border width shall be 35 feet. Border widths and plant species shall be selected to provide wildlife food and/or cover for the desired wildlife species. Plantings shall consist of three or more species to provide greater vegetative diversity.

For beneficial organisms (e.g., predatory and parasitic insects, spiders, insectivorous birds and bats, raptors, and terrestrial rodent predators) that prey on target pests, select diverse plant species that meet dietary, nesting, and cover requirements for the intended species, at least during the critical period for control of target pests and ideally year round.

Mowing, harvesting, weed control, and other management activities within the field border shall be scheduled to accommodate reproduction and other life cycle requirements of target wildlife species. Avoid vehicle traffic in the field border. Do not mow during the primary nesting season (April 15 to August 15).

Additional Criteria to Increase Carbon Storage

Establish plant species that are efficient at sequestering carbon (e.g., warm-season (C4) grasses) and will produce high amounts of above- and below-ground biomass (i.e., a positive soil conditioning index will be achieved). Maximize the width and length of the field border to fit the site and increase total biomass production.

Post-establishment soil disturbance shall be minimized to the extent feasible. Do not burn the field border.

Additional Criteria to Improve Air Quality

Establish plant species with physical characteristics that optimize interception and adhesion of airborne particulates. Select plants with persistent roots and residue that stabilize soil particles and mitigate the generation of airborne particulates. Do not burn the field border.

Note: Specific programs may dictate criteria in addition to, or more restrictive than, those specified in this standard.

CONSIDERATIONS

Consider the long-term land use objectives of the client. For example, if the land user is interested in using the field border to provide wildlife habitat or additional forage production, consider the plant species which may be suitable for these uses.

Assess site conditions including surrounding land uses, soils, residual herbicides (to the extent known), available moisture during the growing season, and existing vegetation on the site and in adjacent areas, including any noxious weeds which may be present.

Consider using native plant species that have multiple values such as those suited for nesting habitat, fruit, seeds, browse, aesthetics, and tolerance to locally used herbicides. Native plant species usually provide the best overall benefits for wildlife and are well-adapted to local conditions.

Avoid plant species which may be alternate hosts to undesirable pests or that may be considered invasive or undesirable. Species diversity should be encouraged in order to minimize problems due to species-specific pests.

Natural regeneration may be an option for establishing vegetation on sites where seeds or rootstocks of desired species are present, and the natural plant community will provide sufficient cover for the intended use of the field border. Natural regeneration is not a suitable option if there are significant site limitations (e.g., highly erodible soils, steep slopes, noxious weeds or other invasive species, etc.) which will inhibit establishment of the desired plant community.

Consider the adverse impacts of high populations of nuisance wildlife, such as deer and groundhogs, on the establishment and maintenance of vegetation. When feasible, select plant species that are not preferred foods of the nuisance animals, and if necessary, utilize methods for protecting the plants until they become well established.

Also consider the potential for attracting nuisance wildlife into an area, either intentionally or unintentionally. Plantings which contain preferred wildlife foods may be used to attract nuisance wildlife away from valuable agricultural crops or ornamental plantings, but may also result in attracting additional nuisance wildlife into an area.

If extensive equipment traffic is expected on the field border during the nesting season, consider mowing the field border early to reduce its attractiveness as a nesting site and thus reduce wildlife mortality.

Identify and evaluate any constraints such as economic feasibility, management options, and regulatory and cost-share program requirements.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice and may be recorded in narrative form, on Implementation Requirements (IR) worksheets, or other approved forms.

For most sites and intended uses of the field border, herbaceous and/or shrub species shall be specified in accordance with the conservation practice standard for Conservation Cover (327) and/or Tree/Shrub Establishment (612). When severe site conditions (e.g., critically eroding sites, frequently used travel lanes) are present or anticipated, vegetation shall be selected from the conservation practice standard for Critical Area Planting (342). If site conditions are favorable, natural regeneration may be specified, either alone or in combination with planting.

Follow the establishment recommendations provided in the Delaware fact sheets for warm season grass plantings, cool season grass plantings, and/or trees and shrubs and complete the 386 IR worksheet. The appropriate fact sheet(s) and IR worksheet can serve as the planting plan and specifications for the practice.

The following items shall be addressed, as appropriate:

1. Method of site preparation;

2. Species and rates to be seeded/planted;

3. Seeding/planting dates;

4. Rate and type of soil amendments to be applied (if any);

5. Method(s) used to protect plantings from animal damage (e.g., fencing, repellents, etc.) or for weed control (e.g., weed mats).

OPERATION AND MAINTENANCE

An Operation and Management (O&M) plan shall be prepared and is the responsibility of the client to implement. The appropriate fact sheet(s) and IR worksheet may serve as the management plan, as well as supporting documentation, and shall be reviewed with and provided to the client.

At a minimum, the following components shall be addressed in the O&M plan, as applicable:

1. Describe the extent of management needed to maintain vegetation in the desired species composition or age class (if applicable), or no management required (e.g., natural area);

2. Inspect the field border at least annually. Shape and replant areas damaged by heavy rainfall, animals, chemicals, tillage, or equipment traffic, and any other areas where the stand is not adequate;

3. Check for insects and diseases, and if an incidence threatens stand survival, take corrective action to keep the pest under control;

4. Control undesirable plants by pulling, mowing, or spraying with a selective herbicide. Control noxious weeds as required by state law;

5. Protect the field border from wildfire and damage from livestock, wildlife, and equipment, to the extent feasible;

6. Where wildlife habitat is a concern, do not mow during the primary nesting season (April 15 to August 15);

7. Apply soil amendments periodically, if needed to maintain plant vigor. If nutrients are applied, refer to the conservation practice standard for Nutrient Management (590). If shrubs are included in the planting, do not fertilize in the first year because the plants will develop too much top growth compared to the roots;

8. Do not use the field border for hay storage or machinery parking for an extended period of time, especially if doing so will damage or impair the function of the practice;

9. Describe the acceptable uses (e.g., flash grazing, haying, etc.) and time of year or

frequency of use restrictions, if any. *Pay particular attention to program requirements as they relate to acceptable vs. restricted uses, and other management restrictions*.

Record Keeping

It is the responsibility of the landowner/client to maintain records as needed to document plan implementation. Records will include actual implementation details of all applicable components under Plans and Specifications.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Extent of planting in acres, field number where the practice located, and the location of the practice marked on the conservation plan map;

2. Assistance notes. The notes shall include dates of site visits, name or initials of the person who made the visit, specifics as to alternatives discussed, decisions made, and by whom;

3. Copy of the appropriate fact sheet(s) and completed IR worksheet, or other specifications and management plans.

REFERENCES

1. Baumgartner, J., et. al. 2005. *Biodiversity Conservation – An Organic Farmer's Guide.* Wild Farm Alliance. http://www.wildfarmalliance.org

2. Tufekcioglu, A., J.W. Raich, T.M. Isenhart and R.C. Schultz. 2003. *Biomass, Carbon and Nitrogen Dynamics of Multi-Species Riparian Buffers within an Agricultural Watershed in Iowa, USA.* Agroforestry Systems 57(3):187-198.

3. USDA, Natural Resources Conservation Service. *Conservation Practice Standards.* Delaware Field Office Technical Guide, Section IV.

4. USDA, Natural Resources Conservation Service. 2006. *Technical Note: Effects of Herbaceous Field Borders on Farmland Birds in the Mississippi Alluvial Valley*.

5. USDA, Natural Resources Conservation Service & Ducks Unlimited Canada. *Vegetating with Native Grasses in Northeastern North America.*

6. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, with the Natural Science Center and Adkins Arboretum. 1995. *Native Plants for Wildlife Habitat.* Annapolis, MD.